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09/920,223	08/01/2001	Rui Lin	884.489US1	5847

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EXAMINER

BATURAY, ALICIA

ART UNIT	PAPER NUMBER
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2155

DATE MAILED: 05/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/920,223

Applicant(s)

LIN ET AL.

Examiner

Alicia Baturay

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05192005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This Office Action is in response to the amendment filed 27 January 2005.
2. Claims 1-13, 18-20 and 22 were amended.
3. Claims 1-25 are pending in this Office Action.

Response to Amendment

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-13 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dye et al. (U.S. 6,208,273) and further in view of Hawkins (U.S. 2001/0032254).
7. With respect to claim 1, Dye discloses a method for caching web page content on a wireless communication device (Dye, col. 16, lines 66-67) comprising: receiving web page content over a wireless link (Dye, col. 17, lines 2-6); selecting one of a plurality of compression algorithms based on the data type (Dye, col. 4, lines 59-66); compressing the portion of the web page content using the selected compression algorithm in response to a request to cache;

and decompressing a compressed portion of the web page content in response to a request to retrieve cache (Dye, col. 17, lines 1-6). But Dye does not expressly disclose identifying a data type within a web page. However, Hawkins does teach identifying a data type of a portion of the web page content (Hawkins, page 11, paragraph 169). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Dye with Hawkins in order to facilitate handheld devices accessing the Internet by caching the web site locally on the client (Hawkins, pages 1-2, paragraphs 14-16).

8. As to claim 2, the combination of Dye and Hawkins (Dye-Hawkins) discloses the invention substantially as described in claim 1, including the method where the web page content comprises a plurality of data types, at least some of the data types being identified by data type tags, where identifying the data type comprises reading the data type tag associated with the portion of the web page content (Hawkins, page 11, paragraph 169), where compressing comprises invoking one of a plurality of compression accelerators associated with the selected compressing algorithm (Dye, Fig. 8, element 570 and 575; col. 4, lines 59-66) to compress the portion the web page content (Dye, col. 21, lines 54-56), and where the decompressing comprises invoking one of a plurality of decompression accelerators associated with the selected compressing algorithm (Dye, Fig. 8, elements 550 and 555; col. 4, lines 59-66) to decompress the compressed portion of the web page content (Dye, col. 21, lines 33-36).

9. As to claim 3, Dye-Hawkins discloses the invention substantially as described in claim 2, including the method further comprising of invoking a first of the compression accelerators for portions of the web page content of a first data type (Dye, Fig. 8, element 570; col. 4, lines 59-66) being identified by first data type tags (Hawkins, page 11, paragraph 169); invoking a second of the compression accelerators for the portions of the web page content of a second data type (Dye, Fig. 8, element 575) being identified by second data type tags (Hawkins, page 11, paragraph 169); invoking a first of the decompression accelerators for compressed portions of the web page content of the first data type (Dye, Fig. 8, element 550); and invoking a second of the decompression accelerators for the compressed portions of the web page content of the second data type (Dye, Fig. 8, element 555).
10. As to claim 4, Dye-Hawkins discloses the invention substantially as described in claim 2, including the method further comprising as part of a caching operation: transferring the portion of the web page content to be cached to a compression engine input buffer (Dye, col. 20, lines 27-41) of a compression accelerator associated with the selected compression algorithm (Dye, Fig. 8, element 570 and 575); and transferring, subsequent to compression, the compressed portion of the web page content from a compression engine output buffer (Dye, col. 20, lines 27-41) to a cache memory (Dye, col. 20, lines 21-22); and as part of a cache retrieval operation: retrieving the compressed portion of the web page content from a cache memory (Dye, col. 20, lines 21-22); transferring the compressed portion of the web page content to a decompression engine input buffer (Dye, col. 20, lines 27-41) of a decompression accelerator associated with the selected compression algorithm (Dye, Fig. 8,

elements 550 and 555); and retrieving decompressed portion of the web page content from a decompression engine output buffer after decompression (Dye, col. 20, lines 27-41).

11. As to claim 5, Dye-Hawkins discloses a system for caching web page comprising: a host processor (Dye, Fig. 1, element 102) to identify a data type associated with a portion of the web page content (Hawkins, page 11, paragraph 169) and to select one of a plurality of compression algorithms based on the identified data type (Dye, col. 4, lines 59-66); a compression engine to compress the portion of the web page content using the selected compression algorithm (Dye, Fig. 8, element 570 and 575; col. 4, lines 59-66) responsive to a request to cache the web page content by the host processor (Dye, col. 17, lines 1-6), the compression engine comprising a plurality of compression accelerators (Dye, Fig. 8, element 570 and 575) where at least one of the compression accelerators associated with the selected compression algorithm (Dye, Fig. 8, element 570 and 575; col. 4, lines 59-66) is invoked to compress the portion (Dye, col. 21, lines 54-56); and a decompression engine to decompress portions of the web page content retrieved from a cache memory (Dye, col. 17, lines 1-6), the decompression engine comprising a plurality of decompression accelerators (Dye, Fig. 8, elements 550 and 555) where at least one of the decompression accelerators associated with the selected compression algorithm (Dye, Fig. 8, elements 550 and 555; col. 4, lines 59-66) is invoked to decompress one of the compressed portion based on the data type of the compressed portion (Dye, col. 21, lines 33-36).

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12. As to claim 6, claim 3 is a method performing the same functions as claim 6. Therefore, paragraph 9 of this Office Action discloses all of the limitations of claim 6.

13. As to claim 7, Dye-Hawkins discloses the invention substantially as described in claim 5, including the system where: the compression engine comprises: a compression engine controller to invoke one of the compression accelerators based on the identified data type (Dye, Fig. 8, element 516); a compression engine input buffer to store the portion of web page content prior to compression by the invoked compression accelerator (Dye, col. 20, lines 27-41); and a compression engine output buffer to store compressed content received from the invoked compression accelerator (Dye, col. 20, lines 27-41), and where the decompression engine comprises: a decompression engine controller to invoke one of the decompression accelerators based on the identified data type (Dye, Fig. 8, element 512); a decompression engine input buffer to store the compressed portions of the web page content (Dye, col. 20, lines 27-41) prior to decompression by the invoked decompression accelerator (Dye, col. 14, lines 62-64); and a decompression engine output buffer to store decompressed portions of the portion of the web page content subsequent to decompression Dye, col. 20, lines 27-41).

14. As to claim 8, Dye-Hawkins discloses the invention substantially as described in claim 7, including the system further comprising a cache memory (Dye, Fig. 1, element 104), where as part of a caching operation, the host processor transfers the portion of the web page content to be cached to the compression engine input buffer, and subsequent to compression,

transfers the compressed portion of the web page content from the compression engine output buffer (Dye, col. 20, lines 27-41) to the cache memory (Dye, col. 20, lines 21-22), and where as part of cache retrieval operation, the host processor retrieves the compressed portion of the web page content from cache memory (Dye, col. 20, lines 21-22), transfers the compressed portion of the web page content to the decompression engine input buffer, and retrieves decompressed portion of the web page content from the decompression engine output buffer (Dye, col. 20, lines 27-41).

15. As to claim 9, Dye-Hawkins discloses a compression engine comprising: a plurality of compression accelerators (Dye, Fig. 8, element 570 and 575); and a controller to identify a data type for different portions of web page content (Hawkins, page 11, paragraph 169) to be cached and to invoke a selected one of the compression accelerators of the plurality to compress a portion of the web page content (Hawkins, page 11, paragraph 169) based on the identified data type (Dye, col. 4, lines 59-66), where a compression algorithm is selected based on the identified data type (Dye, col. 4, lines 59-66), the compression algorithm being implemented by the selected compression accelerators (Dye, Fig. 8, element 570 and 575; col. 4, lines 59-66).

16. As to claim 10, claim 3 is a system performing the same functions as claim 10. Therefore, paragraph 9 of this Office Action discloses all of the limitations of claim 10.

17. As to claim 11, Dye-Hawkins discloses the invention substantially as described in claim 10, including the compression engine where each compression accelerator of the plurality is configured to implement one of a plurality of predetermined compression algorithms (Dye, Fig. 20, elements 570 and 575), where one of the compression algorithms is selected for each portion based on the data type for the portion (Dye, col. 4, lines 59-66).
18. As to claim 12, claim 4 is a method performing the same functions as claim 12. Therefore, paragraph 10 of this Office Action discloses all of the limitations of claim 12.
19. As to claim 13, Dye-Hawkins discloses the invention substantially as described in claim 9, including the compression engine where the web page content comprises a plurality of data types (Dye, col. 43, lines 34-37), each data type having a data type tag associated therewith to identify the data type (Dye, col. 21, lines 33-36), and where the controller reads the data type tag and selects a compression algorithm and an associated one of the compression accelerators for each data type (Dye, col. 4, lines 59-66), and where: a first of the compression accelerators is configured to implement in hardware a first compression algorithm for a first of the data types (Dye, Fig. 8, element 570); and a second of the compression accelerators is configured to implement in hardware a second compression algorithm for a second of the data types (Dye, Fig. 8, element 575), where the first and second data types are distinct and the first and second compression algorithms are distinct (Dye, col. 4, lines 16-18; col. 4, lines 22-24).

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20. As to claim 17, Dye-Hawkins discloses the invention substantially as described in claim 9, including the compression engine where the controller refrains from invoking one of the compression accelerators (Dye, col. 21, lines 44-46) for portions of the content received in compressed form (Dye, col. 40, lines 45-46).
21. As to claim 18, Dye-Hawkins discloses a decompression engine comprising: a plurality of decompression accelerators (Dye, Fig. 8, elements 550 and 555); and a controller to identify a data type for different compressed portions of content of web page content to be retrieved (Hawkins, page 11, paragraph 169), and to invoke a selected one of the decompression accelerators of the plurality based on the data type, (Dye, col. 4, lines 59-66) where a decompression algorithm is selected based on the identified data type, the decompression algorithm being implemented by the selected decompression accelerator (Dye, Fig. 8, elements 550 and 555; col. 4, lines 59-66).
22. As to claim 19, claim 13 is a system performing the same functions as claim 19. Therefore, paragraph 19 of this Office Action discloses all of the limitations of claim 19.
23. As to claim 20, Dye-Hawkins discloses the invention substantially as described in claim 18, including the decompression engine where each decompression accelerator of the plurality is configured to implement one of a plurality of predetermined decompression algorithms, where one of the decompression algorithms (Dye, Fig. 8, elements 550 and 555; col. 4, lines

59-66) is selected for each portion based on the data type for the portion (Dye, col. 4, lines 59-66).

24. As to claim 21, claim 4 is a method performing the same functions as claim 21. Therefore, paragraph 10 of this Office Action discloses all of the limitations of claim 21.

25. As to claim 22, claim 13 is a method performing the same functions as claim 22. Therefore, paragraph 19 of this Office Action discloses all of the limitations of claim 22.

26. Claims 14-16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dye-Hawkins and further in view of Kost (U.S. 5,867,112).

27. As to claim 14, Dye-Hawkins teaches the use of compression algorithms, but does not teach the explicit use of the LZ77 algorithm or the PNG format. However, Kost does teach a compression engine where the first compression algorithm is a Lempel-Ziv 77 (LZ77) compression algorithm (Kost, col. 1, line 54), and a data type comprising of portable network graphics (PNG) data (Kost, col. 4, line 9). It would have been obvious to one skilled at the art at the time the invention was made to combine the teachings of Dye and Kost to facilitate the storage of graphics and text images on computer memory in a compressed format to save disk space (Kost, col. 2, lines 11-13).

28. As to claim 15, the combination of Dye-Hawkins and Kost (Dye-Hawkins-Kost) discloses the invention including the compression engine further comprising a third compression engine configured to hardware implement a third compression algorithm for third data types of the group consisting of either joint photographic experts group (JPEG) or moving pictures experts group (MPEG) data (Kost, col. 3, line 42).

29. As to claim 16, Dye-Hawkins-Kost discloses the invention substantially as described in claim 14, including the compression engine where the second compression algorithm is a LZW compression algorithm (Kost, col. 1, line 49), and the second data type comprises graphic interface format (GIF) data (Kost, col. 4, line 13).

30. As to claim 23, claim 14 is a method performing the same functions as claim 23. Therefore, paragraph 27 of this Office Action discloses all of the limitations of claim 23.

31. As to claim 24, claim 16 is a method performing the same functions as claim 24. Therefore, paragraph 29 of this Office Action discloses all of the limitations of claim 24.

32. As to claim 25, claim 15 is a method performing the same functions as claim 25. Therefore, paragraph 28 of this Office Action discloses all of the limitations of claim 25.

Response to Arguments

33. ***Applicant Argues:*** On page 11, Applicant states “Dye...does not teach, suggest or motivate the selection of a compression algorithm based on a data type.”

In Response: The examiner respectfully submits that Dye explicitly discloses that the compression and decompression technology (referred to as “MemoryF/X”) can include one or more specific lossy compression and decompression modes (several compression algorithms) for particular data formats such as image data, texture maps, digital video and digital audio, and can selectively apply different compression/decompression techniques depending on one or more of the type of data (data types; see Dye, col. 4, line 59-66), which implies that MemoryF/X is capable of selecting a compression algorithm based on data types, rendering the rejection proper, and therefore the rejection stands.

34. ***Applicant Argues:*** On page 11, Applicant states “Dye is concerned primarily with the compression of cached system data and uses a parallel compression/decompression method for his system data...Thus, Dye compresses all system data the same way and does not compress different portions of the system data differently.”

In Response: The examiner respectfully submits that Dye explicitly describes a handheld device receiving data from a network and having the ability to compress this data (Dye, col. 17, lines 2-6), which implies that the device has the ability to compress data received from outside of the system, specifically network data. The examiner respectfully submits that Dye

explicitly discloses that the compression and decompression technology (referred to as “MemoryF/X”) can include one or more specific lossy compression and decompression modes (several compression algorithms) for particular data formats such as image data, texture maps, digital video and digital audio, and can selectively apply different compression/decompression techniques depending on one or more of the type of data (data types; see Dye, col. 4, line 59-66), which implies that MemoryF/X is capable of selecting a compression algorithm based on data types, rendering the rejection proper, and therefore the rejection stands.

35. ***Applicant Argues:*** On page 11, Applicant states “Applicant finds no teaching, suggestion or motivation in Dye to read tags that identify data types, and further, finds no teaching, suggestion or motivation to select a compression algorithm based on the tag.”

In Response: Applicant's arguments with respect to claims 2, 6, 13, 19 and 22 have been considered but are moot in view of the new ground(s) of rejection.

36. ***Applicant Argues:*** On page 12, Applicant states “The use of separate buffers for each compression engine is not taught, suggested or motivated by Dye. Dye operates directly on the system memory through [the] memory controller.”

In Response: The examiner respectfully submits that Dye explicitly states that the system memory is preferably separate from the system controller (Dye, Fig. 7; col. 19, lines 11-13).

Dye also explains that L3 data cache, located on the memory controller (Dye, col. 18, lines 49-51) that is separate from the system memory, can be used as buffers to store blocks (portions of web pages) waiting to be compressed or compressed blocks (compressed portions of web pages) awaiting future decompression (Dye, col. 20, lines 27-41). This renders the rejection proper, and therefore the rejection stands.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Baturay whose telephone number is (571) 272-3981. The examiner can normally be reached at 7:30am - 5pm, Monday - Thursday, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alicia Baturay
May 19, 2005


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